

FREMONT ENVIRONMENTAL INC.

September 13, 2023

Mr. Daniel Peterson
Noble Energy Inc.
2115 117th Avenue
Greeley, CO 80634

Subject: **Flowline Closure Data Submittal**
State 8-60 16-2H
API # 05-123-34824
NWNW Sec. 16, T8N, R60W
Weld County, Colorado
Fremont Project No. C023-248
Facility ID #427010, Remediation #30996

Dear Mr. Peterson:

As you requested, Fremont Environmental Inc. (Fremont) personnel conducted Flowline Closure activities for the Noble Energy Inc. (Noble) State 8-60 16-2H. Impacted soil was not encountered during abandonment activities. Details of the State 8-60 16-2H flowline closure activities are documented in the attached Closure Report. Groundwater was not encountered during flowline abandonment activities.

Please contact me at (303) 956-8714 if you require any additional information. Fremont appreciates the opportunity to provide this service.

Sincerely,

FREMONT ENVIRONMENTAL INC.



Paul V. Henchan, P.E.
Senior Consultant

Attachments:

Facility Closure Checklist
Tables
Figures
Photos
Laboratory Reports

**1759 REDWING LANE, BROOMFIELD, CO 80020
(303) 956-8714 (DIRECT)**

Flowline Closure Checklist

COGCC Rule 911.a.(4) Environmental Site Closure Assessment Field Form

Additional Attachments:		Tank Battery Closure		Wellhead Closure		Pit Closure		Partially Buried Vault Closure
Site Name & COGCC Facility Number: ST T8N-R60W-S16 L02 Facility: 427008		Date: 09/13/2023						Remediation Project #: 30996
Associated Wells: State 8-60 16-2H Location ID: 427010 API: 05-123-34824		Age of Site: 2012						Number of Photos Attached: 8 Photos
Starting point: (GPS coordinates and descriptions) 40.668806, -104.1032778								
End point: (GPS coordinates and descriptions) 40.668332, -104.1038217								
USCS Soil Type: SC					Estimated Depth to Groundwater: N/A			
Hydrocarbon Impacted Soils / Spills: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)								
None observed								
Salt Crusted Soils or Impacted Vegetation: (Note estimated size and if impact appears to be surficial or extends to an unknown depth)								
None observed								
Flowlines								
Flowline type	2" Steel							
Depth	Roughly 3ft							
Age	2012							
Length	218ft							
Construction Material	GRN/TGF							
Were flowlines pulled?	Yes							
Visual Integrity of lines	No Damage							
Visual impacts if trenched	N/A							
PID Readings if trenched	N/A							
Sample taken? Location/Sample ID#	FL01 @ 4.0' FL03 @ 4.0'							
Photo Number(s)	Photo 1A-1C & 2A-2E							
Other observations regarding on location flowlines: An exceedance in arsenic and barium was discovered at both the wellhead and separator tie-in (FL01 @ 4.0' & FL03 @ 4.0') sample locations. Refer to the metals in soil chemistry table (Table 4) for reference. Furthermore local background samples collected at similar depths additionally were found exceeding in arsenic and barium as well. Thus, these exceedances should contributed to native soil conditions.								
Summary								
Was impacted soil identified? No Yes - less than 10 cubic yards Yes - more than 10 cubic yards								
Total number of samples field screened: 1 samples					Total number of samples collected: 13 samples			
Highest PID Reading: High @ 3.1ppm (FL03@4.0')					Total number of samples submitted to lab for analysis: 12 Samples			
If more than 10 cubic yards of impacted soil were observed:								
Vertical extent: N/A					Estimated spill volume: N/A			
Lateral extent: N/A					Volume of soil removed: N/A			
Is additional investigation required? N/A								
Was groundwater encountered during the investigation? No Yes - not impacted or in contact with impacted soils Yes - groundwater impacted and/or in contact with impacted soils								
Measured depth to groundwater: N/A					Was remedial groundwater removal conducted? Yes No			
Date Groundwater was encountered: N/A					Commencement date of removal: N/A			
Sheen on groundwater? Yes No					Volume of groundwater removed prior to sampling: N/A			
Free product observed? Yes No					Volume of groundwater removed post sampling: N/A			
Total number of samples collected: N/A					Total Volume of groundwater removed: N/A			
Total number of samples submitted to lab for analysis: N/A								

TABLE 1
SUMMARY OF VOLATILE ORGANIC SOIL CHEMISTRY DATA
NOBLE ENERGY INC.
STATE 8-60 16-2H, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-248

Sample ID	Sample Date	Depth (ft)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylenes (mg/kg)	1,2,4- Trimethyl- Benzene (mg/kg)	1,3,5- Trimethyl- Benzene (mg/kg)	Naphthalene (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			1.2	490	5.8	58	30	27	2	500**		
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500**		
FL01@4.0'	9/13/2023	4.0 Ft	<0.0200	<0.0500	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50
FL03@4.0'	9/13/2023	4.0 Ft	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<0.50	<50	<50

Bold faced values exceed the COGCC Table 915-1 concentrations

Red & blue highlighted 915-1 Limits indicate the referenced soil screening level (SSL)

* Indicates laboratory minimum detection limit in excess of SSL

** Summation of GRO+DRO+ORO must be less than 500 mg/kg

TABLE 2
SUMMARY OF POLYCYCLIC AROMATIC HYDROCARBON SOIL CHEMISTRY DATA
NOBLE ENERGY INC.
STATE 8-60 16-2H, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-248

Sample ID	Sample Date	Depth (ft)	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benzo (a) Anthracene (mg/kg)	Benzo (a) Pyrene (mg/kg)	Benzo (b) Fluoranthene (mg/kg)	Benzo (k) Fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenzo (a,h) Anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno (1,2,3- cd) Pyrene (mg/kg)	Pyrene (mg/kg)	1-Methyl - Naphthalene (mg/kg)	2-Methyl- Naphthalene (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			360	1800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
FL01@4.0'	9/13/2023	4.0 Ft	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FL03@4.0'	9/13/2023	4.0 Ft	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Bold faced values exceed the COGCC Table 915-1 concentrations
Red & blue highlighted 915-1 Limits indicate the referenced soil screening level (SSL)
* Indicates laboratory minimum detection limit in excess of SSL

TABLE 3
SUMMARY OF SOIL SUITABILITY FOR RECLAMATION
NOBLE ENERGY INC.
STATE 8-60 16-2H, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-248

Sample ID	Sample Date	Depth (ft)	pH	EC (mmhos/cm)	SAR	Boron (mg/L)
ECMC Table 915-1 Soil Suitability Limits			6 - 8.3	<4	<6	2
FL01@4.0'	9/13/2023	4.0 Ft	8.23	0.158	0.318	0.121
FL03@4.0'	9/13/2023	4.0 Ft	8.26	0.269	1.36	0.210
BKG01@6.0"	9/13/2023	0.5 Ft	8.02	0.196	0.322	0.268
BKG01@4.0'	9/13/2023	4.0 Ft	7.77	1.09	4.31	1.00
BKG02@6.0"	9/13/2023	0.5 Ft	8.24	0.280	0.496	0.239
BKG02@4.0'	9/13/2023	4.0 Ft	7.76	4.60	0.479	0.445
BKG03@6.0"	9/13/2023	0.5 Ft	8.36	0.254	1.00	0.171
BKG03@4.0'	9/13/2023	4.0 Ft	7.79	2.96	4.31	0.422
BKG04@6.0"	9/13/2023	0.5 Ft	8.20	0.222	0.755	0.122
BKG04@4.0'	9/13/2023	4.0 Ft	7.91	2.54	5.61	0.516
BKG05@6.0"	9/13/2023	0.5 Ft	8.01	0.301	0.372	0.266
BKG05@4.0'	9/13/2023	4.0 Ft	7.89	2.13	6.06	0.770

Bold faced values exceed the COGCC Table 915-1 concentrations

Yellow highlighted 915-1 Limits indicate the referenced soil screening level (SSL)

Local Background Samples (BKG01, BKG02, BKG03, BKG04, BKG05)

TABLE 4
SUMMARY OF METALS IN SOIL CHEMISTRY DATA
NOBLE ENERGY INC.
STATE 8-60 16-2H, WELD COUNTY, COLORADO
FREMONT PROJECT NO. C023-248

Sample ID	Sample Date	Depth (ft)	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
ECMC Table 915-1 Limits (Residential SSL)			0.68	15000	71	0.3	3100	400	1500	390	390	23000
ECMC Table 915-1 Limits (Protection of Groundwater SSL)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
FL01@4.0'	9/13/2023	4.0 Ft	2.07	104	0.264	<0.30	3.07	7.66	3.34	<0.260	<0.0200	11.9
FL03@4.0'	9/13/2023	4.0 Ft	2.53	163	0.245	<0.30	3.18	8.42	3.23	<0.260	<0.0200	11.5
BKG01@6.0"	9/13/2023	0.5 Ft	2.54	248	0.307	<0.30	3.57	8.71	3.80	<0.260	<0.0200	13.6
BKG01@4.0'	9/13/2023	4.0 Ft	2.86	154	0.387	<0.30	3.12	8.46	4.08	<0.260	<0.0200	13.4
BKG02@6.0"	9/13/2023	0.5 Ft	2.59	244	0.310	<0.30	3.39	8.31	3.70	<0.260	<0.0200	12.9
BKG02@4.0'	9/13/2023	4.0 Ft	3.04	105	0.358	<0.30	3.16	8.11	3.83	<0.260	<0.0200	13.1
BKG03@6.0"	9/13/2023	0.5 Ft	2.70	347	0.316	<0.30	3.20	8.83	3.68	<0.260	<0.0200	13.1
BKG03@4.0'	9/13/2023	4.0 Ft	3.10	129	0.377	<0.30	3.42	8.42	4.10	<0.260	0.0216	14.2
BKG04@6.0"	9/13/2023	0.5 Ft	2.66	462	0.379	<0.30	3.61	10.4	3.94	<0.260	0.0217	13.9
BKG04@4.0'	9/13/2023	4.0 Ft	3.34	167	0.435	<0.30	3.47	9.22	4.28	<0.260	0.0234	14.8
BKG05@6.0"	9/13/2023	0.5 Ft	2.43	158	0.313	<0.30	3.41	8.89	3.47	<0.260	<0.0200	12.6
BKG05@4.0'	9/13/2023	4.0 Ft	2.62	118	0.324	<0.30	2.68	7.24	3.46	<0.260	<0.0200	11.7

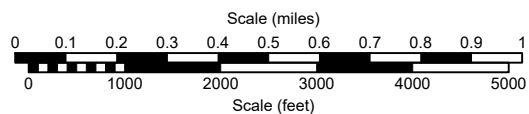
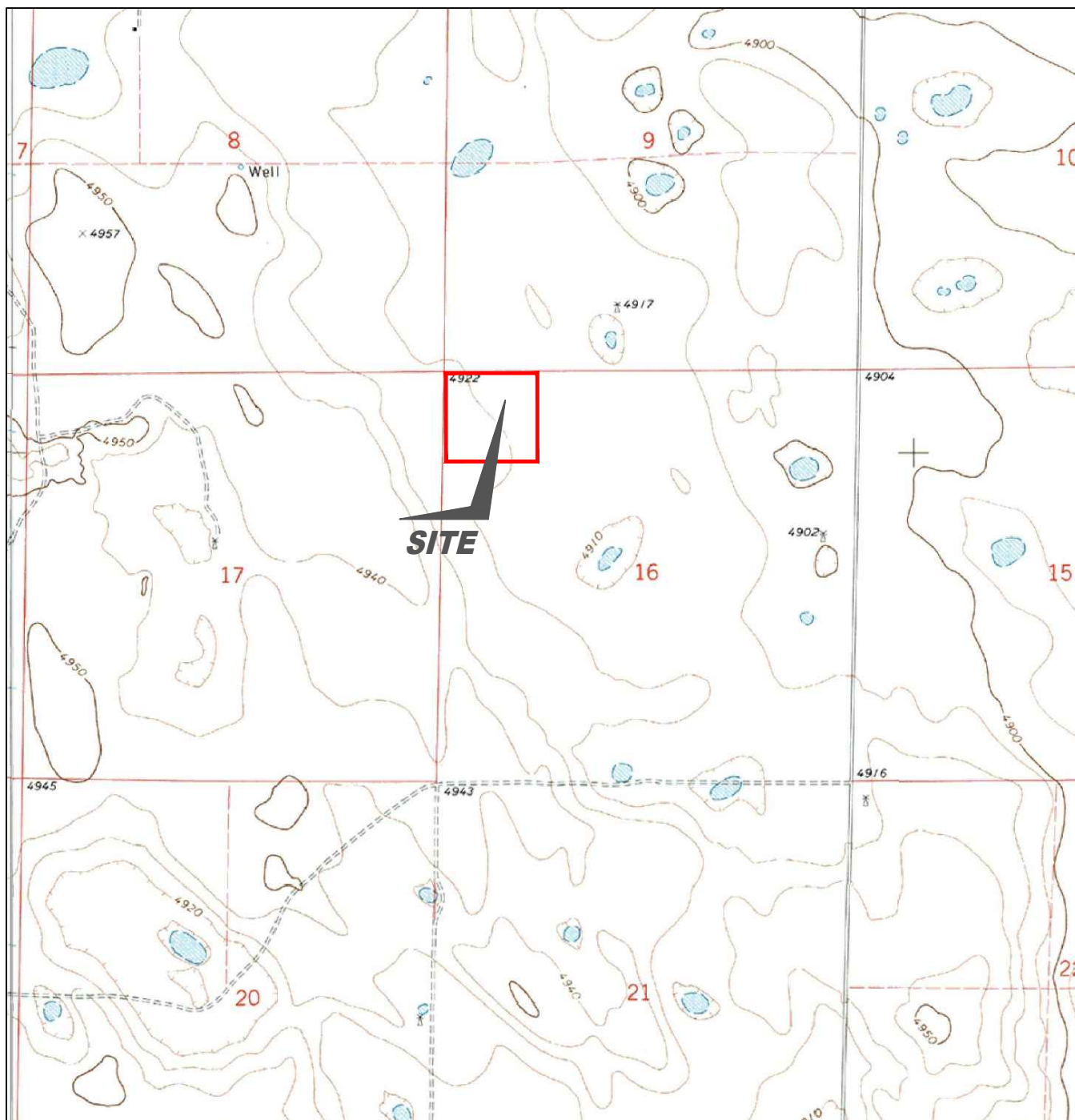
Bold faced values exceed the COGCC Table 915-1 concentrations

Red & blue highlighted 915-1 Limits indicate the referenced soil screening level (SSL)

* Indicates laboratory minimum detection limit in excess of SSL

NA - Not analyzed

Local Background Samples (BKG01, BKG02, BKG03, BKG04, BKG05)



USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 1
SITE LOCATION MAP

NOBLE ENERGY INC - State 8-60 16-2H
 NWNW Sec. 16, T8N, R60W, 6th PM
 Weld County, Colorado
 40.668807°, -104.103220°

Project # CO23-248	API # 05-123-34824	Facility # 427010
Date 11/07/2023	Remediation # 30996	Filename 23248T



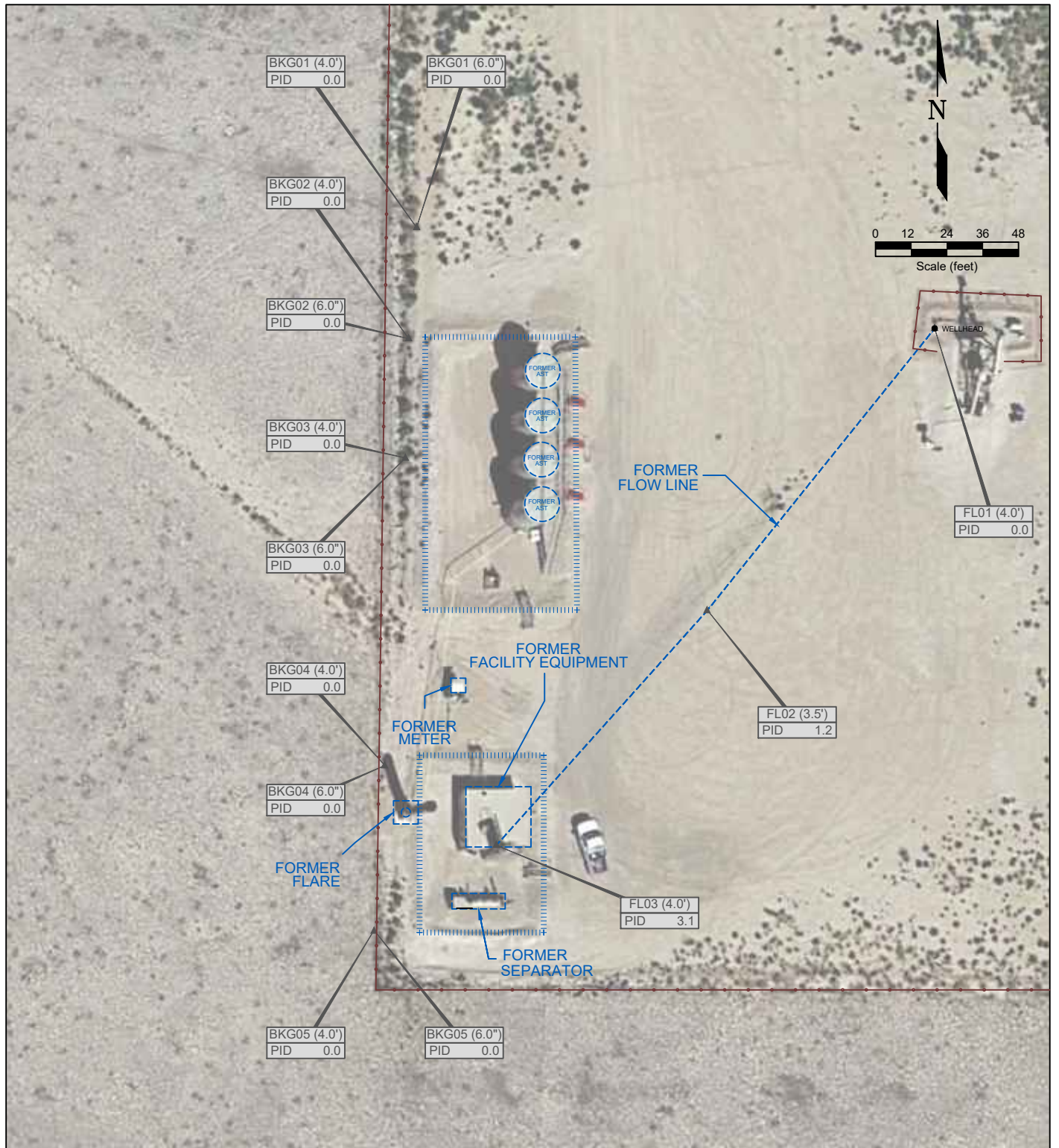
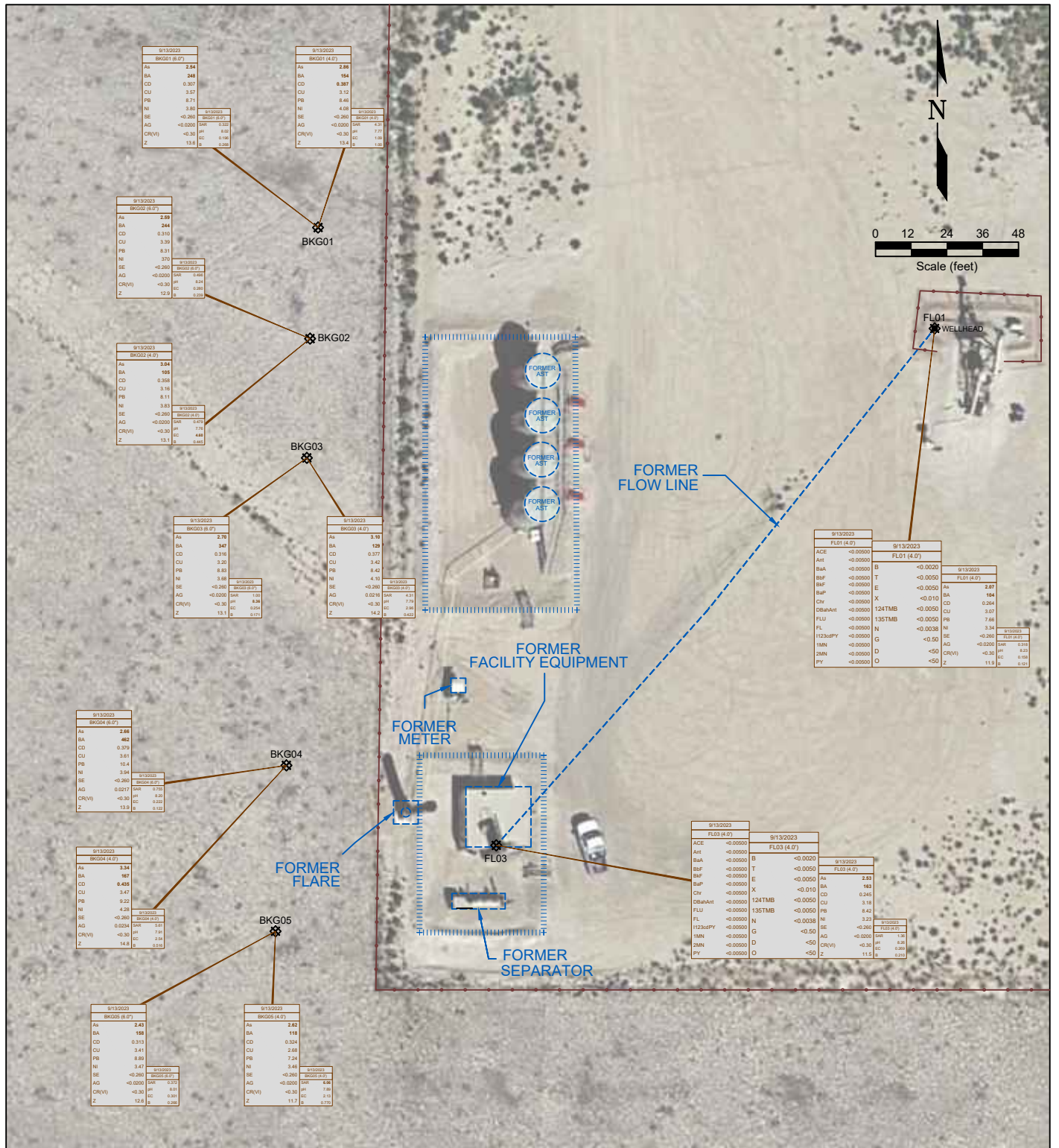


Figure 2
SITE MAP

NOBLE ENERGY INC - State 8-60 16-2H
 NWNW Sec. 16, T8N, R60W, 6th PM
 Weld County, Colorado
 40.668807°, -104.103220°

Project # CO23-248	API # 05-123-34824	Facility # 427010
Date 11/07/2023	Remediation # 30996	Filename 23248Q





LEGEND

- WELLHEAD LOCATION
- ⊗ SOIL SAMPLE LOCATION
- ABOVE GROUND STORAGE TANK
- FORMER FACILITY
- FLOW LINE
- CONTAINMENT BERM
- FENCE LINE

DATE SAMPLED	DATE SAMPLED	DATE SAMPLED	DATE SAMPLED
9/13/2023	9/13/2023	9/13/2023	9/13/2023
FL01 (4.0')	BKG01 (4.0')	BKG02 (4.0')	BKG03 (4.0')
ACE	BA	BA	BA
Ant	CD	CD	CD
BaA	CU	CU	CU
BaP	PE	PE	PE
BaP	SE	SE	SE
BaP	AG	AG	AG
Chv	CR(VI)	CR(VI)	CR(VI)
DBA	Z	Z	Z
FLU			
FLU			
H123dPY			
MNN			
2MN			
PY			

Figure 3
SOIL CHEMISTRY MAP

NOBLE ENERGY INC - State 8-60 16-2H
NWNW Sec. 16, T8N, R60W, 6th PM
Weld County, Colorado
40.668807°, -104.103220°

Project #	API #	Facility #	
CO23-248	05-123-34824	427010	
Date	Remediation #	Filename	
11/07/2023	30996	23248Q	

Photo Log



Description:

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Photo Log



Description:

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Photo Log



Description:

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Photo Log



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Description:

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Photo Log



Description:

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Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

September 29, 2023

Paul Henchan

Fremont Environmental

PO Box 1289

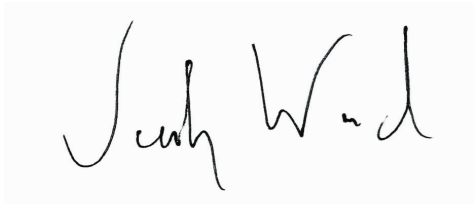
Wellington, CO 80549

RE: Noble - State 8-60 16-2H

Work Order #2309215

Enclosed are the results of analyses for samples received by Summit Scientific on 09/13/23 16:58. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Jacob Wood". The signature is written in a cursive, flowing style.

Jacob Wood For Paul Shrewsbury

President



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL01@4.0'	2309215-01	Soil	09/13/23 00:00	09/13/23 16:58
FL03@4.0'	2309215-02	Soil	09/13/23 00:00	09/13/23 16:58

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.


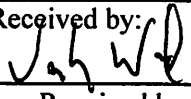
SUMMIT SCIENTIFIC

4653 Table Mountain Drive
Golden, CO 80403
303-277-9310

Lab ID	Page 1 of 1
2309215	

Client: Fremont Env		Send Data To:		Send Invoice To:	
Address:		Project Manager: Paul Henehan		Company: Noble	
City/State/Zip:		E-Mail: Paulh@fremontenv.com		Project Name/Location: State 8-60 16-2H	
Phone:		jeffg@fremontenv.com Ethemb@fremontenv.com		AFE#:	
Sampler Name: J6		Project Name: State 8-60 16-2H		PO/Billing Codes: UWRWE-A2003-ABN	
		Project Number:		Contact:	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEX+N	TMGS (915)	DRD, DRD, 620	PAHs (915)	EC, pH, SAR, Boron	Metals (915)			
1	FL01@4.0'	9/13/23		2			X			X			X	X	X	X	X	X			
2	FL03@4.0'	9/13/23		2			X			X			X	X	X	X	X	X			
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by: 	Date/Time: 9/13/23 1658	Received by: 	Date/Time: 9/13/23 16:58	TAT Business Days	Field DO	Notes: Bill to Noble
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day	Field EC	
				1 Day	Field ORP	
				2 Days	Field pH	
				3 Days	Field Temp.	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Standard	X Field Turb.	
Temperature Upon Receipt: 25.4	Corrected Temperature	IR gun #: 2	HNO3 lot #:			

S₂

Sample Receipt Checklist

S2 Work Order# 2309215Client: Noble Fremont Client Project ID: State 8-60 16-24Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: ☐
☒ ☐ ☐ ☐ ☐
Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 25.4 Thermometer # 2

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ice
If custody seals are present, are they intact? ⁽¹⁾	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No Sample times
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				
⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.				

Jah Wnd

Custodian Printed Name

9/13/23 16:58

Date/Time



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

FL01@4.0'
2309215-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGI0422	09/14/23	09/15/23	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0422	105 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0468	117 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0461	115 %		50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGI0423	09/14/23	09/14/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	12.8	102 %		30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

FL01@4.0'
2309215-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGI0482	09/18/23	09/18/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0184	55.1 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0196	58.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.121	0.0100	mg/L	1	BGI0464	09/15/23	09/19/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

FL01@4.0'
2309215-01 (Soil)

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Total Metals by EPA 6020B

Arsenic	2.07	0.200	mg/kg dry	1	BGI0396	09/14/23	09/19/23	EPA 6020B
Barium	104	0.400	"	"	"	"	"	"
Cadmium	0.264	0.200	"	"	"	"	"	"
Copper	3.07	0.400	"	"	"	"	"	"
Lead	7.66	0.200	"	"	"	"	"	"
Nickel	3.34	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	11.9	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGI0454	09/15/23	09/18/23	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	29.3	0.0630	mg/L dry	1	BGI0463	09/15/23	09/18/23	EPA 6020B	
Magnesium	3.80	0.0630	"	"	"	"	"	"	
Sodium	6.89	0.0630	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.318	0.00100	units	1	BGI0570	09/19/23	09/19/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

FL01@4.0'
2309215-01 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	79.3		%	1	BGI0403	09/14/23	09/14/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.158	0.0100	mmhos/cm	1	BGI0487	09/18/23	09/18/23	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.23		pH Units	1	BGI0489	09/18/23	09/18/23	EPA 9045D	

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Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

FL03@4.0'
2309215-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGI0422	09/14/23	09/15/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0406	102 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0481	120 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0458	115 %	50-150		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGI0423	09/14/23	09/14/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	12.7	101 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

FL03@4.0'
2309215-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGI0482	09/18/23	09/18/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0179	53.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0202	60.6 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/23 00:00**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.210	0.0100	mg/L	1	BGI0464	09/15/23	09/19/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
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FL03@4.0'
2309215-02 (Soil)

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Total Metals by EPA 6020B

Arsenic	2.53	0.200	mg/kg dry	1	BGI0396	09/14/23	09/19/23	EPA 6020B
Barium	163	0.400	"	"	"	"	"	"
Cadmium	0.245	0.200	"	"	"	"	"	"
Copper	3.18	0.400	"	"	"	"	"	"
Lead	8.42	0.200	"	"	"	"	"	"
Nickel	3.23	0.400	"	"	"	"	"	"
Silver	ND	0.0200	"	"	"	"	"	"
Zinc	11.5	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGI0454	09/15/23	09/18/23	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	36.2	0.0589	mg/L dry	1	BGI0463	09/15/23	09/18/23	EPA 6020B	
Magnesium	4.40	0.0589	"	"	"	"	"	"	
Sodium	32.5	0.0589	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.36	0.00100	units	1	BGI0570	09/19/23	09/19/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

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Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

FL03@4.0'
2309215-02 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	84.9			%	1	BGI0403	09/14/23	09/14/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.269	0.0100		mmhos/cm	1	BGI0487	09/18/23	09/18/23	EPA 120.1	

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Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

FL03@4.0'
2309215-02 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.26			pH Units	1	BGI0916	09/18/23	09/28/23	EPA 9045D	

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Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGI0422 - EPA 5030 Soil MS

Blank (BGI0422-BLK1)

Prepared & Analyzed: 09/14/23

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0428		"	0.0400		107	50-150			
Surrogate: Toluene-d8	0.0432		"	0.0400		108	50-150			
Surrogate: 4-Bromofluorobenzene	0.0450		"	0.0400		113	50-150			

LCS (BGI0422-BS1)

Prepared & Analyzed: 09/14/23

Benzene	0.112	0.0020	mg/kg	0.100		112	70-130			
Toluene	0.119	0.0050	"	0.100		119	70-130			
Ethylbenzene	0.121	0.0050	"	0.100		121	70-130			
m,p-Xylene	0.245	0.010	"	0.200		123	70-130			
o-Xylene	0.105	0.0050	"	0.100		105	70-130			
1,2,4-Trimethylbenzene	0.114	0.0050	"	0.100		114	70-130			
1,3,5-Trimethylbenzene	0.119	0.0050	"	0.100		119	70-130			
Naphthalene	0.111	0.0038	"	0.100		111	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0436		"	0.0400		109	50-150			
Surrogate: Toluene-d8	0.0422		"	0.0400		105	50-150			
Surrogate: 4-Bromofluorobenzene	0.0378		"	0.0400		94.4	50-150			

Matrix Spike (BGI0422-MS1)

Source: 2309017-04

Prepared & Analyzed: 09/14/23

Benzene	0.100	0.0020	mg/kg	0.100	ND	100	70-130			
Toluene	0.106	0.0050	"	0.100	ND	106	70-130			
Ethylbenzene	0.109	0.0050	"	0.100	ND	109	70-130			
m,p-Xylene	0.219	0.010	"	0.200	ND	109	70-130			
o-Xylene	0.0957	0.0050	"	0.100	ND	95.7	70-130			
1,2,4-Trimethylbenzene	0.103	0.0050	"	0.100	ND	103	70-130			
1,3,5-Trimethylbenzene	0.107	0.0050	"	0.100	ND	107	70-130			
Naphthalene	0.109	0.0038	"	0.100	ND	109	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0433		"	0.0400		108	50-150			
Surrogate: Toluene-d8	0.0417		"	0.0400		104	50-150			
Surrogate: 4-Bromofluorobenzene	0.0379		"	0.0400		94.8	50-150			

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Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGI0422 - EPA 5030 Soil MS

Matrix Spike Dup (BGI0422-MSD1)		Source: 2309017-04			Prepared & Analyzed: 09/14/23					
Benzene	0.0874	0.0020	mg/kg	0.100	ND	87.4	70-130	13.9	30	
Toluene	0.103	0.0050	"	0.100	ND	103	70-130	2.92	30	
Ethylbenzene	0.0931	0.0050	"	0.100	ND	93.1	70-130	15.4	30	
m,p-Xylene	0.191	0.010	"	0.200	ND	95.5	70-130	13.4	30	
o-Xylene	0.0832	0.0050	"	0.100	ND	83.2	70-130	14.0	30	
1,2,4-Trimethylbenzene	0.0892	0.0050	"	0.100	ND	89.2	70-130	14.8	30	
1,3,5-Trimethylbenzene	0.0918	0.0050	"	0.100	ND	91.8	70-130	15.1	30	
Naphthalene	0.0821	0.0038	"	0.100	ND	82.1	70-130	27.9	30	
Surrogate: 1,2-Dichloroethane-d4		0.0444	"	0.0400		111	50-150			
Surrogate: Toluene-d8		0.0449	"	0.0400		112	50-150			
Surrogate: 4-Bromofluorobenzene		0.0407	"	0.0400		102	50-150			

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Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGI0423 - EPA 3550A

Blank (BGI0423-BLK1)

Prepared & Analyzed: 09/14/23

C10-C28 (DRO)	ND	50	mg/kg
C28-C36 (ORO)	ND	50	"

Surrogate: o-Terphenyl	12.0	"	12.5	95.8	30-150
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LCS (BGI0423-BS1)

Prepared & Analyzed: 09/14/23

C10-C28 (DRO)	380	50	mg/kg	500	76.1	70-130
Surrogate: o-Terphenyl	12.3	"	12.5	98.2	30-150	

Matrix Spike (BGI0423-MS1)

Source: 2309017-04

Prepared & Analyzed: 09/14/23

C10-C28 (DRO)	421	50	mg/kg	500	9.19	82.3	70-130
Surrogate: o-Terphenyl	15.3	"	12.5	122	30-150		

Matrix Spike Dup (BGI0423-MSD1)

Source: 2309017-04

Prepared & Analyzed: 09/14/23

C10-C28 (DRO)	370	50	mg/kg	500	9.19	72.1	70-130	12.8	20
Surrogate: o-Terphenyl	13.3	"	12.5	106	30-150				

Summit Scientific

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Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Reporting			Spike		Source		%REC		RPD	
	Result	Limit	Units	Level		Result		%REC	Limits	RPD	Limit

Batch BGI0482 - EPA 5030 Soil MS

Blank (BGI0482-BLK1)

Prepared & Analyzed: 09/18/23

Acenaphthene	ND	0.00500	mg/kg								
Anthracene	ND	0.00500	"								
Benzo (a) anthracene	ND	0.00500	"								
Benzo (a) pyrene	ND	0.00500	"								
Benzo (b) fluoranthene	ND	0.00500	"								
Benzo (k) fluoranthene	ND	0.00500	"								
Chrysene	ND	0.00500	"								
Dibenz (a,h) anthracene	ND	0.00500	"								
Fluoranthene	ND	0.00500	"								
Fluorene	ND	0.00500	"								
Indeno (1,2,3-cd) pyrene	ND	0.00500	"								
Pyrene	ND	0.00500	"								
1-Methylnaphthalene	ND	0.00500	"								
2-Methylnaphthalene	ND	0.00500	"								
Surrogate: 2-Methylnaphthalene-d10	0.0397		"	0.0333		119		40-150			
Surrogate: Fluoranthene-d10	0.0260		"	0.0333		77.9		40-150			

LCS (BGI0482-BS1)

Prepared & Analyzed: 09/18/23

Acenaphthene	0.0243	0.00500	mg/kg	0.0333		72.8		31-137			
Anthracene	0.0239	0.00500	"	0.0333		71.6		30-120			
Benzo (a) anthracene	0.0229	0.00500	"	0.0333		68.7		30-120			
Benzo (a) pyrene	0.0229	0.00500	"	0.0333		68.6		30-120			
Benzo (b) fluoranthene	0.0253	0.00500	"	0.0333		75.9		30-120			
Benzo (k) fluoranthene	0.0272	0.00500	"	0.0333		81.6		30-120			
Chrysene	0.0259	0.00500	"	0.0333		77.6		30-120			
Dibenz (a,h) anthracene	0.0146	0.00500	"	0.0333		43.9		30-120			
Fluoranthene	0.0245	0.00500	"	0.0333		73.5		30-120			
Fluorene	0.0234	0.00500	"	0.0333		70.3		30-120			
Indeno (1,2,3-cd) pyrene	0.0183	0.00500	"	0.0333		54.9		30-120			
Pyrene	0.0268	0.00500	"	0.0333		80.5		35-142			
1-Methylnaphthalene	0.0230	0.00500	"	0.0333		68.9		35-142			
2-Methylnaphthalene	0.0287	0.00500	"	0.0333		86.1		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0198		"	0.0333		59.5		40-150			
Surrogate: Fluoranthene-d10	0.0242		"	0.0333		72.6		40-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Reporting			Spike Level	Source		%REC		RPD	
	Result	Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

Batch BGI0482 - EPA 5030 Soil MS

Matrix Spike (BGI0482-MS1)

Source: 2309214-01

Prepared & Analyzed: 09/18/23

Acenaphthene	0.0186	0.00500	mg/kg	0.0333	ND	55.7	31-137		
Anthracene	0.0178	0.00500	"	0.0333	ND	53.5	30-120		
Benzo (a) anthracene	0.0190	0.00500	"	0.0333	ND	57.0	30-120		
Benzo (a) pyrene	0.0180	0.00500	"	0.0333	ND	54.1	30-120		
Benzo (b) fluoranthene	0.0200	0.00500	"	0.0333	ND	60.1	30-120		
Benzo (k) fluoranthene	0.0213	0.00500	"	0.0333	ND	63.9	30-120		
Chrysene	0.0201	0.00500	"	0.0333	ND	60.4	30-120		
Dibenz (a,h) anthracene	0.0117	0.00500	"	0.0333	ND	35.1	30-120		
Fluoranthene	0.0187	0.00500	"	0.0333	ND	56.2	30-120		
Fluorene	0.0185	0.00500	"	0.0333	ND	55.4	30-120		
Indeno (1,2,3-cd) pyrene	0.0146	0.00500	"	0.0333	ND	43.9	30-120		
Pyrene	0.0207	0.00500	"	0.0333	ND	62.0	35-142		
1-Methylnaphthalene	0.0171	0.00500	"	0.0333	ND	51.3	15-130		
2-Methylnaphthalene	0.0203	0.00500	"	0.0333	ND	61.0	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0158		"	0.0333		47.5	40-150		
Surrogate: Fluoranthene-d10	0.0191		"	0.0333		57.2	40-150		

Matrix Spike Dup (BGI0482-MSD1)

Source: 2309214-01

Prepared & Analyzed: 09/18/23

Acenaphthene	0.0168	0.00500	mg/kg	0.0333	ND	50.3	31-137	10.3	30
Anthracene	0.0155	0.00500	"	0.0333	ND	46.5	30-120	14.0	30
Benzo (a) anthracene	0.0177	0.00500	"	0.0333	ND	53.0	30-120	7.27	30
Benzo (a) pyrene	0.0160	0.00500	"	0.0333	ND	48.1	30-120	11.8	30
Benzo (b) fluoranthene	0.0179	0.00500	"	0.0333	ND	53.7	30-120	11.2	30
Benzo (k) fluoranthene	0.0189	0.00500	"	0.0333	ND	56.7	30-120	11.9	30
Chrysene	0.0177	0.00500	"	0.0333	ND	53.1	30-120	12.9	30
Dibenz (a,h) anthracene	0.0105	0.00500	"	0.0333	ND	31.5	30-120	11.1	30
Fluoranthene	0.0162	0.00500	"	0.0333	ND	48.7	30-120	14.3	30
Fluorene	0.0162	0.00500	"	0.0333	ND	48.6	30-120	13.0	30
Indeno (1,2,3-cd) pyrene	0.0131	0.00500	"	0.0333	ND	39.4	30-120	10.9	30
Pyrene	0.0187	0.00500	"	0.0333	ND	56.1	35-142	10.1	30
1-Methylnaphthalene	0.0172	0.00500	"	0.0333	ND	51.7	15-130	0.744	50
2-Methylnaphthalene	0.0208	0.00500	"	0.0333	ND	62.3	15-130	2.14	50
Surrogate: 2-Methylnaphthalene-d10	0.0163		"	0.0333		48.8	40-150		
Surrogate: Fluoranthene-d10	0.0167		"	0.0333		50.1	40-150		

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGI0464 - EPA 3050B

Blank (BGI0464-BLK1)

Prepared: 09/15/23 Analyzed: 09/19/23

Boron ND 0.0100 mg/L

LCS (BGI0464-BS1)

Prepared: 09/15/23 Analyzed: 09/19/23

Boron 5.64 0.0100 mg/L 5.00 113 80-120

Duplicate (BGI0464-DUP1)

Source: 2309214-01

Prepared: 09/15/23 Analyzed: 09/19/23

Boron 0.128 0.0100 mg/L 0.168 27.1 20 QR-04

Matrix Spike (BGI0464-MS1)

Source: 2309214-01

Prepared: 09/15/23 Analyzed: 09/19/23

Boron 5.97 0.0100 mg/L 5.00 0.168 116 75-125

Matrix Spike Dup (BGI0464-MSD1)

Source: 2309214-01

Prepared: 09/15/23 Analyzed: 09/19/23

Boron 5.67 0.0100 mg/L 5.00 0.168 110 75-125 5.06 25

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

Total Metals by EPA 6020B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGI0396 - EPA 3050B

Blank (BGI0396-BLK1)

Prepared: 09/14/23 Analyzed: 09/19/23

Arsenic	ND	0.200	mg/kg wet
Barium	ND	0.400	"
Cadmium	ND	0.200	"
Copper	ND	0.400	"
Lead	ND	0.200	"
Nickel	ND	0.400	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"
Selenium	ND	0.260	"

LCS (BGI0396-BS1)

Prepared: 09/14/23 Analyzed: 09/19/23

Arsenic	34.7	0.200	mg/kg wet	40.0	86.7	80-120
Barium	35.1	0.400	"	40.0	87.7	80-120
Cadmium	1.73	0.200	"	2.00	86.4	80-120
Copper	34.8	0.400	"	40.0	87.0	80-120
Lead	17.2	0.200	"	20.0	86.2	80-120
Nickel	34.3	0.400	"	40.0	85.9	80-120
Silver	1.73	0.0200	"	2.00	86.7	80-120
Zinc	34.9	0.400	"	40.0	87.1	80-120

Duplicate (BGI0396-DUP1)

Source: 2309214-01

Prepared: 09/14/23 Analyzed: 09/19/23

Arsenic	4.64	0.200	mg/kg dry	3.10	40.0	20	QR-04
Barium	240	0.400	"	265	9.77	20	
Cadmium	0.318	0.200	"	0.298	6.62	20	
Copper	3.37	0.400	"	3.85	13.5	20	
Lead	7.96	0.200	"	7.66	3.84	20	
Nickel	3.96	0.400	"	4.01	1.37	20	
Silver	0.0153	0.0200	"	0.0138	10.5	20	
Zinc	13.6	0.400	"	15.4	12.3	20	
Selenium	ND	0.260	"	ND		200	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

Total Metals by EPA 6020B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGI0396 - EPA 3050B

Matrix Spike (BGI0396-MS1)

Source: 2309214-01

Prepared: 09/14/23 Analyzed: 09/19/23

Arsenic	44.3	0.200	mg/kg dry	50.9	3.10	80.9	75-125			
Barium	360	0.400	"	50.9	265	188	75-125			QM-05
Cadmium	2.62	0.200	"	2.55	0.298	91.0	75-125			
Copper	27.7	0.400	"	50.9	3.85	46.9	75-125			QM-05
Lead	30.6	0.200	"	25.5	7.66	89.9	75-125			
Nickel	28.9	0.400	"	50.9	4.01	48.9	75-125			QM-05
Silver	2.16	0.0200	"	2.55	0.0138	84.2	75-125			
Zinc	39.9	0.400	"	50.9	15.4	48.2	75-125			QM-05

Matrix Spike Dup (BGI0396-MSD1)

Source: 2309214-01

Prepared: 09/14/23 Analyzed: 09/19/23

Arsenic	46.3	0.200	mg/kg dry	50.9	3.10	84.8	75-125	4.39	25	
Barium	324	0.400	"	50.9	265	116	75-125	10.6	25	
Cadmium	2.52	0.200	"	2.55	0.298	87.3	75-125	3.67	25	
Copper	29.7	0.400	"	50.9	3.85	50.6	75-125	6.69	25	QM-05
Lead	29.9	0.200	"	25.5	7.66	87.3	75-125	2.21	25	
Nickel	30.7	0.400	"	50.9	4.01	52.5	75-125	6.02	25	QM-05
Silver	2.17	0.0200	"	2.55	0.0138	84.8	75-125	0.705	25	
Zinc	41.8	0.400	"	50.9	15.4	51.9	75-125	4.60	25	QM-05

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGI0454 - 3060A Mod

Blank (BGI0454-BLK1)

Prepared: 09/15/23 Analyzed: 09/18/23

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BGI0454-BS1)

Prepared: 09/15/23 Analyzed: 09/18/23

Chromium, Hexavalent 26.6 0.30 mg/kg wet 25.0 106 80-120

Duplicate (BGI0454-DUP1)

Source: 2309215-01

Prepared: 09/15/23 Analyzed: 09/18/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BGI0454-MS1)

Source: 2309215-01

Prepared: 09/15/23 Analyzed: 09/18/23

Chromium, Hexavalent 33.3 0.30 mg/kg dry 31.5 ND 106 75-125

Matrix Spike Dup (BGI0454-MSD1)

Source: 2309215-01

Prepared: 09/15/23 Analyzed: 09/18/23

Chromium, Hexavalent 33.2 0.30 mg/kg dry 31.5 ND 105 75-125 0.379 20

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Fremont Environmental PO Box 1289 Wellington CO, 80549	Project: Noble - State 8-60 16-2H Project Number: UWRWE-A2003-ABN Project Manager: Paul Henchan	Reported: 09/29/23 15:55
--	---	-----------------------------

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike	Source		%REC		RPD	
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGI0403 - General Preparation

Duplicate (BGI0403-DUP1)	Source: 2308177-02			Prepared & Analyzed: 09/14/23							
% Solids	86.1		%		85.5			0.695		20	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGI0489 - General Preparation

LCS (BGI0489-BS1)

Prepared & Analyzed: 09/18/23

pH	9.11		pH Units	9.18		99.2	95-105		
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Duplicate (BGI0489-DUP1)

Source: 2309214-01

Prepared & Analyzed: 09/18/23

pH	8.13		pH Units		8.13			0.00	20
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Batch BGI0916 - General Preparation

LCS (BGI0916-BS1)

Prepared & Analyzed: 09/28/23

pH	9.15		pH Units	9.18		99.7	95-105		
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Duplicate (BGI0916-DUP1)

Source: 2308477-01

Prepared & Analyzed: 09/28/23

pH	8.86		pH Units		8.85			0.113	20
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Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - State 8-60 16-2H

Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
09/29/23 15:55

Notes and Definitions

QR-04	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 13, 2023

Paul Henchan

Fremont Environmental

PO Box 1289

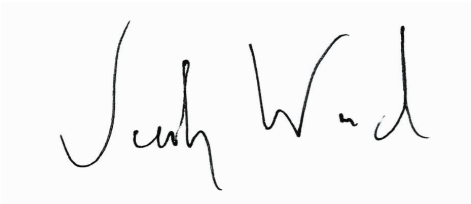
Wellington, CO 80549

RE: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H

Work Order #2309216

Enclosed are the results of analyses for samples received by Summit Scientific on 09/13/23 16:58. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Jacob Wood". The signature is written in a cursive, flowing style.

Jacob Wood For Paul Shrewsbury

President



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H

Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BKG01@6.0"	2309216-01	Soil	09/13/23 00:00	09/13/23 16:58
BKG01@4.0"	2309216-02	Soil	09/13/23 00:00	09/13/23 16:58
BKG02@6.0"	2309216-03	Soil	09/13/23 00:00	09/13/23 16:58
BKG02@4.0"	2309216-04	Soil	09/13/23 00:00	09/13/23 16:58
BKG03@6.0"	2309216-05	Soil	09/13/23 00:00	09/13/23 16:58
BKG03@4.0"	2309216-06	Soil	09/13/23 00:00	09/13/23 16:58
BKG04@6.0"	2309216-07	Soil	09/13/23 00:00	09/13/23 16:58
BKG04@4.0"	2309216-08	Soil	09/13/23 00:00	09/13/23 16:58
BKG05@6.0"	2309216-09	Soil	09/13/23 00:00	09/13/23 16:58
BKG05@4.0"	2309216-10	Soil	09/13/23 00:00	09/13/23 16:58

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

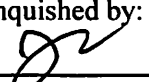
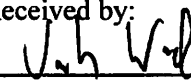
SUMMIT SCIENTIFIC

4653 Table Mountain Drive
Golden, CO 80403
303-277-9310

Lab ID	Page 1 of 1
2309214	

Send Data To:		Send Invoice To:	
Client: Fremont Env	Project Manager: Paul Henahan	Company: Noble	
Address:	E-Mail: PaulH@fremontenv.com	Project Name/Location: State 8-60 16-2M	
City/State/Zip:	jeffg@fremontenv.com Ethanb@fremontenv.com	AFE#:	
Phone:	Project Name: ST TBN-R60W-S16 103 / State 8-60 16-2M	PO/Billing Codes: UWRUF-A2003-ABN	
Sampler Name: JG	Project Number:	Contact:	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested					Special Instructions
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	EC, pH, SAR, Baran	Metals (915)				
1	BK601@6.0"	9/13/23		1			X			X			X	X				
2	BK601@4.0'																	
3	BK602@6.0"																	
4	BK602@4.0'																	
5	BK603@6.0"																	
6	BK603@4.0'																	
7	BK604@6.0"																	
8	BK604@4.0'																	
9	BK605@6.0"																	
10	BK605@4.0'																	
11																		
12																		
13																		
14																		
15																		

Relinquished by: 	Date/Time: 9/13/23 1658	Received by: 	Date/Time: 9/13/23 1658	TAT Business Days	Field DO	Notes: Bill to Noble
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day	Field EC	
Relinquished by:	Date/Time:	Received by:	Date/Time:	1 Day	Field ORP	
Relinquished by:	Date/Time:	Received by:	Date/Time:	2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
Temperature Upon Receipt: 24.6	Corrected Temperature	IR gun #: 2	HNO3 lot #:	Standard	X Field Turb.	

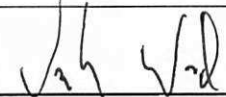
S₂

Sample Receipt Checklist

S2 Work Order# 2309214Client: Noble Fremont Client Project ID: ST T8N-860W-516 LOZ/StateShipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: 8-60 16-24
☒ ☐ ☐ ☐ ☐
Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐Temp (°C) 24.6 Thermometer # 2

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ice
If custody seals are present, are they intact? ⁽¹⁾	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	no sample times
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.


 Custodian Printed Name

9/13/23 16:58
 Date/Time



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG01@6.0"
2309216-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.268	0.0100	mg/L	1	BGI0444	09/15/23	09/19/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	2.54	0.200	mg/kg dry	1	BGI0396	09/14/23	09/19/23	EPA 6020B	
Barium	248	0.400	"	"	"	"	"	"	
Cadmium	0.307	0.200	"	"	"	"	"	"	
Copper	3.57	0.400	"	"	"	"	"	"	
Lead	8.71	0.200	"	"	"	"	"	"	
Nickel	3.80	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	13.6	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/23 00:00**

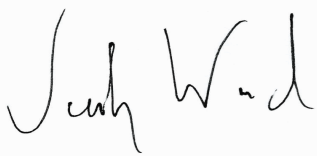
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGI0453	09/15/23	09/18/23	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	32.4	0.0500	mg/L dry	1	BGI0463	09/15/23	09/18/23	EPA 6020B	
Magnesium	3.30	0.0500	"	"	"	"	"	"	
Sodium	7.19	0.0500	"	"	"	"	"	"	

Summit Scientific



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PO Box 1289
Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG01@6.0"
2309216-01 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.322	0.00100	units	1	BGI0570	09/19/23	09/19/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.4		%	1	BGI0403	09/14/23	09/14/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.196	0.0100	mmhos/cm	1	BGI0487	09/18/23	09/18/23	EPA 120.1	

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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG01@6.0"
2309216-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.02			pH Units	1	BGI0919	09/18/23	09/28/23	EPA 9045D	

Summit Scientific

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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG01@4.0"
2309216-02 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	1.00	0.0100	mg/L	1	BGI0444	09/15/23	09/19/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	2.86	0.200	mg/kg dry	1	BGI0396	09/14/23	09/19/23	EPA 6020B	
Barium	154	0.400	"	"	"	"	"	"	
Cadmium	0.387	0.200	"	"	"	"	"	"	
Copper	3.12	0.400	"	"	"	"	"	"	
Lead	8.46	0.200	"	"	"	"	"	"	
Nickel	4.08	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	13.4	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGI0453	09/15/23	09/18/23	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	496	0.0500	mg/L dry	1	BGI0463	09/15/23	09/18/23	EPA 6020B	
Magnesium	50.5	0.0500	"	"	"	"	"	"	
Sodium	377	0.0500	"	"	"	"	"	"	

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PO Box 1289
Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H

Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG01@4.0"
2309216-02 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.31	0.00100	units	1	BGI0570	09/19/23	09/19/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.1		%	1	BGI0403	09/14/23	09/14/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.09	0.0100	mmhos/cm	1	BGI0487	09/18/23	09/18/23	EPA 120.1	

Summit Scientific

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Fremont Environmental
PO Box 1289
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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG01@4.0"
2309216-02 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.77			pH Units	1	BGI0919	09/18/23	09/28/23	EPA 9045D	

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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG02@6.0"
2309216-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	0.239	0.0100	mg/L	1	BGI0444	09/15/23	09/19/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	2.59	0.200	mg/kg dry	1	BGI0396	09/14/23	09/19/23	EPA 6020B	
Barium	244	0.400	"	"	"	"	"	"	
Cadmium	0.310	0.200	"	"	"	"	"	"	
Copper	3.39	0.400	"	"	"	"	"	"	
Lead	8.31	0.200	"	"	"	"	"	"	
Nickel	3.70	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	12.9	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/23 00:00**


Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGI0453	09/15/23	09/18/23	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	42.7	0.0500	mg/L dry	1	BGI0463	09/15/23	09/18/23	EPA 6020B	
Magnesium	4.71	0.0500	"	"	"	"	"	"	
Sodium	12.8	0.0500	"	"	"	"	"	"	

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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG02@6.0"
2309216-03 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.496	0.00100	units	1	BGI0570	09/19/23	09/19/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.7		%	1	BGI0403	09/14/23	09/14/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.280	0.0100	mmhos/cm	1	BGI0487	09/18/23	09/18/23	EPA 120.1	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG02@6.0"
2309216-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.24			pH Units	1	BGI0919	09/18/23	09/28/23	EPA 9045D	

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PO Box 1289
Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG02@4.0"
2309216-04 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	0.445	0.0100	mg/L	1	BGI0444	09/15/23	09/19/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	3.04	0.200	mg/kg dry	1	BGI0396	09/14/23	09/19/23	EPA 6020B	
Barium	105	0.400	"	"	"	"	"	"	
Cadmium	0.358	0.200	"	"	"	"	"	"	
Copper	3.16	0.400	"	"	"	"	"	"	
Lead	8.11	0.200	"	"	"	"	"	"	
Nickel	3.83	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	13.1	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGI0453	09/15/23	09/18/23	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	43.4	0.0500	mg/L dry	1	BGI0463	09/15/23	09/18/23	EPA 6020B	
Magnesium	4.50	0.0500	"	"	"	"	"	"	
Sodium	12.4	0.0500	"	"	"	"	"	"	

Summit Scientific

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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG02@4.0"
2309216-04 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.479	0.00100	units	1	BGI0570	09/19/23	09/19/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.5		%	1	BGI0403	09/14/23	09/14/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	4.60	0.0100	mmhos/cm	1	BGI0487	09/18/23	09/18/23	EPA 120.1	

Summit Scientific

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Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG02@4.0"
2309216-04 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.76			pH Units	1	BGI0919	09/18/23	09/28/23	EPA 9045D	

Summit Scientific

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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG03@6.0"
2309216-05 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	0.171	0.0100	mg/L	1	BGI0444	09/15/23	09/19/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	2.70	0.200	mg/kg dry	1	BGI0396	09/14/23	09/19/23	EPA 6020B	
Barium	347	0.400	"	"	"	"	"	"	
Cadmium	0.316	0.200	"	"	"	"	"	"	
Copper	3.20	0.400	"	"	"	"	"	"	
Lead	8.83	0.200	"	"	"	"	"	"	
Nickel	3.68	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	13.1	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGI0453	09/15/23	09/18/23	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	51.2	0.0500	mg/L dry	1	BGI0463	09/15/23	09/18/23	EPA 6020B	
Magnesium	3.22	0.0500	"	"	"	"	"	"	
Sodium	27.4	0.0500	"	"	"	"	"	"	

Summit Scientific

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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H

Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG03@6.0"
2309216-05 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.00	0.00100	units	1	BGI0570	09/19/23	09/19/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.5		%	1	BGI0403	09/14/23	09/14/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.254	0.0100	mmhos/cm	1	BGI0487	09/18/23	09/18/23	EPA 120.1	

Summit Scientific

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Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG03@6.0"
2309216-05 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.36			pH Units	1	BGI0919	09/18/23	09/28/23	EPA 9045D	

Summit Scientific

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Fremont Environmental
PO Box 1289
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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG03@4.0"
2309216-06 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	0.422	0.0100	mg/L	1	BGI0444	09/15/23	09/19/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	3.10	0.200	mg/kg dry	1	BGI0396	09/14/23	09/19/23	EPA 6020B	
Barium	129	0.400	"	"	"	"	"	"	
Cadmium	0.377	0.200	"	"	"	"	"	"	
Copper	3.42	0.400	"	"	"	"	"	"	
Lead	8.42	0.200	"	"	"	"	"	"	
Nickel	4.10	0.400	"	"	"	"	"	"	
Silver	0.0216	0.0200	"	"	"	"	"	"	
Zinc	14.2	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGI0453	09/15/23	09/18/23	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	276	0.0500	mg/L dry	1	BGI0463	09/15/23	09/18/23	EPA 6020B	
Magnesium	33.3	0.0500	"	"	"	"	"	"	
Sodium	285	0.0500	"	"	"	"	"	"	

Calculated Analysis

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG03@4.0"
2309216-06 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.31	0.00100	units	1	BGI0570	09/19/23	09/19/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.0		%	1	BGI0403	09/14/23	09/14/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.96	0.0100	mmhos/cm	1	BGI0487	09/18/23	09/18/23	EPA 120.1	

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Fremont Environmental
PO Box 1289
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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG03@4.0"
2309216-06 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.79			pH Units	1	BGI0919	09/18/23	09/28/23	EPA 9045D	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG04@6.0"
2309216-07 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	0.122	0.0100	mg/L	1	BGI0444	09/15/23	09/19/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	2.66	0.200	mg/kg dry	1	BGI0396	09/14/23	09/19/23	EPA 6020B	
Barium	462	0.400	"	"	"	"	"	"	
Cadmium	0.379	0.200	"	"	"	"	"	"	
Copper	3.61	0.400	"	"	"	"	"	"	
Lead	10.4	0.200	"	"	"	"	"	"	
Nickel	3.94	0.400	"	"	"	"	"	"	
Silver	0.0217	0.0200	"	"	"	"	"	"	
Zinc	13.9	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGI0453	09/15/23	09/18/23	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	39.5	0.0500	mg/L dry	1	BGI0463	09/15/23	09/18/23	EPA 6020B	
Magnesium	3.34	0.0500	"	"	"	"	"	"	
Sodium	18.4	0.0500	"	"	"	"	"	"	

Calculated Analysis

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG04@6.0"
2309216-07 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.755	0.00100	units	1	BGI0570	09/19/23	09/19/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.5		%	1	BGI0403	09/14/23	09/14/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.222	0.0100	mmhos/cm	1	BGI0487	09/18/23	09/18/23	EPA 120.1	

Summit Scientific

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Fremont Environmental
PO Box 1289
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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG04@6.0"
2309216-07 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.20			pH Units	1	BGI0919	09/18/23	09/28/23	EPA 9045D	

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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG04@4.0"
2309216-08 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	0.516	0.0100	mg/L	1	BGI0444	09/15/23	09/19/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	3.34	0.200	mg/kg dry	1	BGI0396	09/14/23	09/19/23	EPA 6020B	
Barium	167	0.400	"	"	"	"	"	"	
Cadmium	0.435	0.200	"	"	"	"	"	"	
Copper	3.47	0.400	"	"	"	"	"	"	
Lead	9.22	0.200	"	"	"	"	"	"	
Nickel	4.28	0.400	"	"	"	"	"	"	
Silver	0.0234	0.0200	"	"	"	"	"	"	
Zinc	14.8	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGI0453	09/15/23	09/18/23	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	177	0.0500	mg/L dry	1	BGI0463	09/15/23	09/18/23	EPA 6020B	
Magnesium	22.2	0.0500	"	"	"	"	"	"	
Sodium	298	0.0500	"	"	"	"	"	"	

Calculated Analysis

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG04@4.0"
2309216-08 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	5.61	0.00100	units	1	BGI0570	09/19/23	09/19/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.3		%	1	BGI0403	09/14/23	09/14/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.54	0.0100	mmhos/cm	1	BGI0487	09/18/23	09/18/23	EPA 120.1	

Summit Scientific

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Fremont Environmental
PO Box 1289
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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG04@4.0"
2309216-08 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.91			pH Units	1	BGI0919	09/18/23	09/28/23	EPA 9045D	

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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG05@6.0"
2309216-09 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	0.266	0.0100	mg/L	1	BGI0444	09/15/23	09/19/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	2.43	0.200	mg/kg dry	1	BGI0396	09/14/23	09/19/23	EPA 6020B	
Barium	158	0.400	"	"	"	"	"	"	
Cadmium	0.313	0.200	"	"	"	"	"	"	
Copper	3.41	0.400	"	"	"	"	"	"	
Lead	8.89	0.200	"	"	"	"	"	"	
Nickel	3.47	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	12.6	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/23 00:00**


Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGI0453	09/15/23	09/18/23	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	45.7	0.0500	mg/L dry	1	BGI0463	09/15/23	09/18/23	EPA 6020B	
Magnesium	5.52	0.0500	"	"	"	"	"	"	
Sodium	10.0	0.0500	"	"	"	"	"	"	

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Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG05@6.0"
2309216-09 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.372	0.00100	units	1	BGI0570	09/19/23	09/19/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	92.7		%	1	BGI0403	09/14/23	09/14/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.301	0.0100	mmhos/cm	1	BGI0487	09/18/23	09/18/23	EPA 120.1	

Summit Scientific

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Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG05@6.0"
2309216-09 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.01			pH Units	1	BGI0919	09/18/23	09/28/23	EPA 9045D	

Summit Scientific

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Fremont Environmental
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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG05@4.0"
2309216-10 (Soil)

Summit Scientific

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Boron	0.770	0.0100	mg/L	1	BGI0444	09/15/23	09/19/23	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Arsenic	2.62	0.200	mg/kg dry	1	BGI0396	09/14/23	09/19/23	EPA 6020B	
Barium	118	0.400	"	"	"	"	"	"	
Cadmium	0.324	0.200	"	"	"	"	"	"	
Copper	2.68	0.400	"	"	"	"	"	"	
Lead	7.24	0.200	"	"	"	"	"	"	
Nickel	3.46	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
Zinc	11.7	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGI0453	09/15/23	09/18/23	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Calcium	124	0.0500	mg/L dry	1	BGI0463	09/15/23	09/18/23	EPA 6020B	
Magnesium	16.0	0.0500	"	"	"	"	"	"	
Sodium	270	0.0500	"	"	"	"	"	"	

Summit Scientific

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Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG05@4.0"
2309216-10 (Soil)

Summit Scientific

Calculated Analysis

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	6.06	0.00100	units	1	BGI0570	09/19/23	09/19/23	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	87.2		%	1	BGI0403	09/14/23	09/14/23	Calculation	

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	2.13	0.0100	mmhos/cm	1	BGI0487	09/18/23	09/18/23	EPA 120.1	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

BKG05@4.0"
2309216-10 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **09/13/23 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.89			pH Units	1	BGI0919	09/18/23	09/28/23	EPA 9045D	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H

Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGI0444 - EPA 3050B

Blank (BGI0444-BLK1)

Prepared: 09/15/23 Analyzed: 09/18/23

Boron ND 0.0100 mg/L

LCS (BGI0444-BS1)

Prepared: 09/15/23 Analyzed: 09/18/23

Boron 5.21 0.0100 mg/L 5.00 104 80-120

Duplicate (BGI0444-DUP1)

Source: 2309189-01

Prepared: 09/15/23 Analyzed: 09/18/23

Boron 0.260 0.0100 mg/L 0.281 7.94 20

Matrix Spike (BGI0444-MS1)

Source: 2309189-01

Prepared: 09/15/23 Analyzed: 09/18/23

Boron 5.18 0.0100 mg/L 5.00 0.281 98.0 75-125

Matrix Spike Dup (BGI0444-MSD1)

Source: 2309189-01

Prepared: 09/15/23 Analyzed: 09/18/23

Boron 5.49 0.0100 mg/L 5.00 0.281 104 75-125 5.77 25

Summit Scientific

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Fremont Environmental
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Wellington CO, 80549

Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H
Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

Total Metals by EPA 6020B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGI0396 - EPA 3050B

Blank (BGI0396-BLK1)

Prepared: 09/14/23 Analyzed: 09/19/23

Arsenic	ND	0.200	mg/kg wet
Barium	ND	0.400	"
Cadmium	ND	0.200	"
Copper	ND	0.400	"
Lead	ND	0.200	"
Nickel	ND	0.400	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"
Selenium	ND	0.260	"

LCS (BGI0396-BS1)

Prepared: 09/14/23 Analyzed: 09/19/23

Arsenic	34.7	0.200	mg/kg wet	40.0	86.7	80-120
Barium	35.1	0.400	"	40.0	87.7	80-120
Cadmium	1.73	0.200	"	2.00	86.4	80-120
Copper	34.8	0.400	"	40.0	87.0	80-120
Lead	17.2	0.200	"	20.0	86.2	80-120
Nickel	34.3	0.400	"	40.0	85.9	80-120
Silver	1.73	0.0200	"	2.00	86.7	80-120
Zinc	34.9	0.400	"	40.0	87.1	80-120

Duplicate (BGI0396-DUP1)

Source: 2309214-01

Prepared: 09/14/23 Analyzed: 09/19/23

Arsenic	4.64	0.200	mg/kg dry	3.10	40.0	20	QR-04
Barium	240	0.400	"	265	9.77	20	
Cadmium	0.318	0.200	"	0.298	6.62	20	
Copper	3.37	0.400	"	3.85	13.5	20	
Lead	7.96	0.200	"	7.66	3.84	20	
Nickel	3.96	0.400	"	4.01	1.37	20	
Silver	0.0153	0.0200	"	0.0138	10.5	20	
Zinc	13.6	0.400	"	15.4	12.3	20	
Selenium	ND	0.260	"	ND		200	

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Project Manager: Paul Henchan

Reported:
10/13/23 11:40

Total Metals by EPA 6020B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGI0396 - EPA 3050B

Matrix Spike (BGI0396-MS1)

Source: 2309214-01

Prepared: 09/14/23 Analyzed: 09/19/23

Arsenic	44.3	0.200	mg/kg dry	50.9	3.10	80.9	75-125			
Barium	360	0.400	"	50.9	265	188	75-125			QM-05
Cadmium	2.62	0.200	"	2.55	0.298	91.0	75-125			
Copper	27.7	0.400	"	50.9	3.85	46.9	75-125			QM-05
Lead	30.6	0.200	"	25.5	7.66	89.9	75-125			
Nickel	28.9	0.400	"	50.9	4.01	48.9	75-125			QM-05
Silver	2.16	0.0200	"	2.55	0.0138	84.2	75-125			
Zinc	39.9	0.400	"	50.9	15.4	48.2	75-125			QM-05

Matrix Spike Dup (BGI0396-MSD1)

Source: 2309214-01

Prepared: 09/14/23 Analyzed: 09/19/23

Arsenic	46.3	0.200	mg/kg dry	50.9	3.10	84.8	75-125	4.39	25	
Barium	324	0.400	"	50.9	265	116	75-125	10.6	25	
Cadmium	2.52	0.200	"	2.55	0.298	87.3	75-125	3.67	25	
Copper	29.7	0.400	"	50.9	3.85	50.6	75-125	6.69	25	QM-05
Lead	29.9	0.200	"	25.5	7.66	87.3	75-125	2.21	25	
Nickel	30.7	0.400	"	50.9	4.01	52.5	75-125	6.02	25	QM-05
Silver	2.17	0.0200	"	2.55	0.0138	84.8	75-125	0.705	25	
Zinc	41.8	0.400	"	50.9	15.4	51.9	75-125	4.60	25	QM-05

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Project Manager: Paul Henchan

Reported:
10/13/23 11:40

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGI0453 - 3060A Mod

Blank (BGI0453-BLK1)

Prepared: 09/15/23 Analyzed: 09/18/23

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BGI0453-BS1)

Prepared: 09/15/23 Analyzed: 09/18/23

Chromium, Hexavalent 26.7 0.30 mg/kg wet 25.0 107 80-120

Duplicate (BGI0453-DUP1)

Source: 2308577-01

Prepared: 09/15/23 Analyzed: 09/18/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BGI0453-MS1)

Source: 2308577-01

Prepared: 09/15/23 Analyzed: 09/18/23

Chromium, Hexavalent 29.7 0.30 mg/kg dry 28.2 ND 105 75-125

Matrix Spike Dup (BGI0453-MSD1)

Source: 2308577-01

Prepared: 09/15/23 Analyzed: 09/18/23

Chromium, Hexavalent 29.2 0.30 mg/kg dry 28.2 ND 104 75-125 1.53 20

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Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control

Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

Batch BGI0403 - General Preparation

Duplicate (BGI0403-DUP1)

Source: 2308177-02

Prepared & Analyzed: 09/14/23

% Solids	86.1	%		85.5		0.695	20
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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H

Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

Batch BGI0919 - General Preparation

LCS (BGI0919-BS1)

Prepared & Analyzed: 09/28/23

pH	9.15	pH Units	9.18	99.7	95-105
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Duplicate (BGI0919-DUP1)

Source: 2308631-01

Prepared & Analyzed: 09/28/23

pH	8.83	pH Units	8.84	0.113	20
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Summit Scientific

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Project: Noble - ST T8N-R60W-S16 L02/State 8-60 16-2H

Project Number: UWRWE-A2003-ABN
Project Manager: Paul Henchan

Reported:
10/13/23 11:40

Notes and Definitions

QR-04	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The associated LCS and/or LCSD were within acceptance limits, therefore the data are considered valid.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference